

AN EVALUATION OF PREFERENCE FOR VIDEO AND IN VIVO MODELING

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We assessed preference for video or in vivo modeling using a concurrent-chains arrangement with 3 children with autism. The two modeling conditions produced similar acquisition rates and no differential selection (i.e., preference) for all 3 participants.

Key words: autism, concurrent-chains schedules, modeling, preference assessment, video modeling

Video modeling involves a learner observing a videotaped depiction of a model correctly performing a target behavior before he or she attempts to perform the target behavior (DeLano, 2007). A recent meta-analytic review has illustrated the breadth of skills that have been targeted successfully using video modeling and has described potential benefits of using video modeling with children with autism (Bellini & Akullian, 2007). Some benefits include the nonsocial nature of the video stimulus, the consistency of presentation across trials, and the ability to isolate and enhance important features of the behavior (Bellini & Akullian; LeBlanc et al., 2003; Marcus & Wilder, 2009). Several researchers have advocated using video modeling rather than in vivo modeling because children with autism might have strong preferences for television and videos (Charlop-Christy, Le, & Freeman, 2000; Corbett & Abdullah, 2005; Dowrick, 1986). However, to

date, no attempt has been made to demonstrate experimentally whether children with autism prefer video modeling to in vivo modeling.

Concurrent-chains assessments have been used to examine intervention preferences for individuals with severe language or cognitive impairment (e.g., Hanley, Piazza, Fisher, & Maglieri, 2005). In the concurrent-chains procedure, an initial response results in access to a terminal-link activity, which is usually a brief period of intervention. After repeated exposure to the relation between initial responses and resulting interventions, the participant selects among two or more interventions, and the relative distribution of selections is taken as an indicator of preference. The purpose of the current study was to examine children's preference for modeling interventions using a concurrent-chains procedure.

METHOD

Participants And Setting

The 3 participants had diagnoses of autism or autistic features, which were confirmed with Autism Diagnostic Observation Schedule-Generic (Lord et al., 2000). Sam (7 years old) spoke in one- to two-word phrases and was able to complete all Level 1 (0 to 18 months) and some Level 2 (18 to 30 months) tasks on the Verbal Behavior Milestones Assessment and

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Placement Program (VB-MAPP; Sundberg, 2008). Joe (9 years old) spoke in full sentences and was able to complete all Level 1 and Level 2 tasks on the VB-MAPP. Dave (8 years old) spoke in two- to three-word phrases and was able to complete all Level 1 tasks and some Level 2 tasks on the VB-MAPP.

Sessions occurred at a university clinical laboratory. The initial link in the concurrent chains occurred in the hall outside the two treatment rooms. Each door had either a blue (video modeling) or red (in vivo modeling) poster (91 cm by 122 cm) with a picture (20 cm by 25 cm) representing the condition (i.e., TV or adult model). A corresponding colored poster hung on each wall of the room, which was equipped with a table and chair, the task materials, and an adult model or a TV/DVD player for the video model.

Experimental Design and Target Selection

The initial exposure to the conditions and their corresponding colors was evaluated using an alternating treatments design. Baselines were established for two skills that had been rated equally difficult by practicing professionals in early behavioral intervention for autism. The yoked skills were assigned randomly to the two interventions, and a concurrent-schedules design was used to evaluate preference for the modeling conditions to be used for learning a third skill.

Procedure

Baseline. The child was seated at the table and given the task materials and instruction (e.g., paper and markers, “draw a house”). No consequences were provided for correct or incorrect responses.

Modeling exposure. Participants learned one exemplar of a skill in each modeling condition (e.g., “draw a sun” with video modeling, “draw a smile” with in vivo modeling). Learning trials of the two conditions were alternated within each session, with order of conditions counter-balanced within and across sessions. Trials started in the hallway where the researcher held the red or blue card directly in front of the child

and instructed him to touch it, grab it, or name the color, depending on his abilities. The researcher and child entered the corresponding room for instruction. For in vivo modeling, the researcher said, “watch this” and modeled the task in scene perspective (i.e., across from child) before presenting the materials and the instruction used in baseline. Five of the six in vivo models were 12 s or shorter, whereas the sixth was 104 s. For video modeling, the researcher said, “watch this,” played a video of a person performing the task once, and provided the task materials and instruction (e.g., “draw a sun”). Five of the six videos were 20 s or shorter, whereas the sixth (“make a bug”) was 89 s. Point-of-view perspective was used for drawing and craft-construction tasks, and scene perspective was used for social language tasks. The same adult served as the actor and live model. In both conditions, fully correct independent responses (details available from the first author) resulted in praise, and all other responses (i.e., partially correct, no response) produced no consequence. Two trials were conducted in one condition before a return to the hallway and presentation of the other card. The termination criteria were four consecutive trials of 100% accuracy with one skill and four consecutive trials of at least 75% accuracy with the other skill.

Preference evaluation. A third skill was targeted in the preference evaluation. Before each block of two learning trials, the researcher presented the initial link in the concurrent chain in the hallway by holding both colored cards in front of and equally distant from the participant and instructing him to select one. The researcher followed the participant into the corresponding room, conducted two trials with the relevant modeling procedure, and returned to the hallway for another selection. The termination criterion was four consecutive trials of 100% accuracy. If acquisition was rapid, a second skill was targeted.

If the participant did not differentially select one intervention, a third condition (yellow card, free-play control) was introduced to determine

whether equal responding was due to a discrimination failure or equal preference. The free-play condition was conducted in a room about 6 m away from where the child and experimenter played during breaks throughout the experiment. The experimenter showed the participant a yellow poster on the door and the yellow selection card before the first selection opportunity. The three cards were presented in a fan formation, and their positions were rotated across selection opportunities.

Measurement

The primary dependent measure was cumulative card selections, defined as touching or naming the colored card. Data were also collected on the percentage of target skill components completed accurately and duration of attention to the model. Attention to the model was defined as direct eye gaze to the model and was scored from video footage.

A second trained observer scored card selection for 100% of trials, with an agreement defined as both recording the same color selection. Agreement was 100%. For skill completion, the number of agreements for each step was divided by the sum of agreements and disagreements and converted to a percentage. The mean agreement across trials was 99% (range, 60% to 100%) for Sam, 98% (range, 60% to 100%) for Dave, and 100% for Joe. Agreement for attention to the model was calculated by dividing the smaller duration by the longer duration and converting to a percentage. Agreement was 98% (range, 83% to 100%) for Sam, 94% (range, 0% to 100%) for Dave, and 99% (range, 89% to 100%) for Joe. Procedural integrity was evaluated for card presentation, models, and reinforcement for 71% of trials across all phases of the study. Mean percentage accuracy was 100% for Sam and Dave and 94% (range, 75% to 100%) for Joe.

RESULTS AND DISCUSSION

During exposure to the modeling interventions, Sam attended for a greater percentage of

the video model (93%) than the in vivo model (77%). He initially acquired the skills at similar rates, but mastered the in vivo modeling task (draw a smile, 21 trials) and never mastered the video modeling task fully (draw a sun, 22 trials). Joe showed slightly greater attending to the video model (96%) than the in vivo model (87%). He acquired both skills rapidly, demonstrating 100% accuracy on the first trial for each condition and mastering each in the minimum number of trials to criterion (i.e., four). Dave attended more to the in vivo model (56%) than the video model (42%). He performed with greater initial accuracy on the in vivo modeling task (draw a smile); however, both skills met the mastery criterion in a similar number of trials (18 and 20, respectively).

Figure 1 depicts the cumulative condition selections in the preference evaluation. Sam showed no differentiation in his selections, selecting video modeling on 15 of 34 opportunities (44%) and in vivo modeling on 14 of 34 opportunities (41%). He selected the control card every time it was available (five opportunities), indicating a preference for free play over both instructional procedures and no preference between the two interventions. Joe also selected the two modeling conditions equally often. He selected the control card once (in four opportunities, 25%), but on later trials stated that the room was too far away and that he would rather do the tasks. Dave selected video modeling on 11 of 26 (42%) opportunities, in vivo modeling on 14 of 26 (54%) opportunities, and the control card on 1 of 10 opportunities (10%). He avoided social interactions and did not play much during the play condition, suggesting that free play was a nonpreferred activity, whereas the two instructional procedures were equally preferred.

Charlop-Christy et al. (2000) found that video modeling resulted in fewer trials to criterion for 4 of 5 participants and better generalization than in vivo modeling. The authors suggested that the differential effectiveness might be due to better attending to video

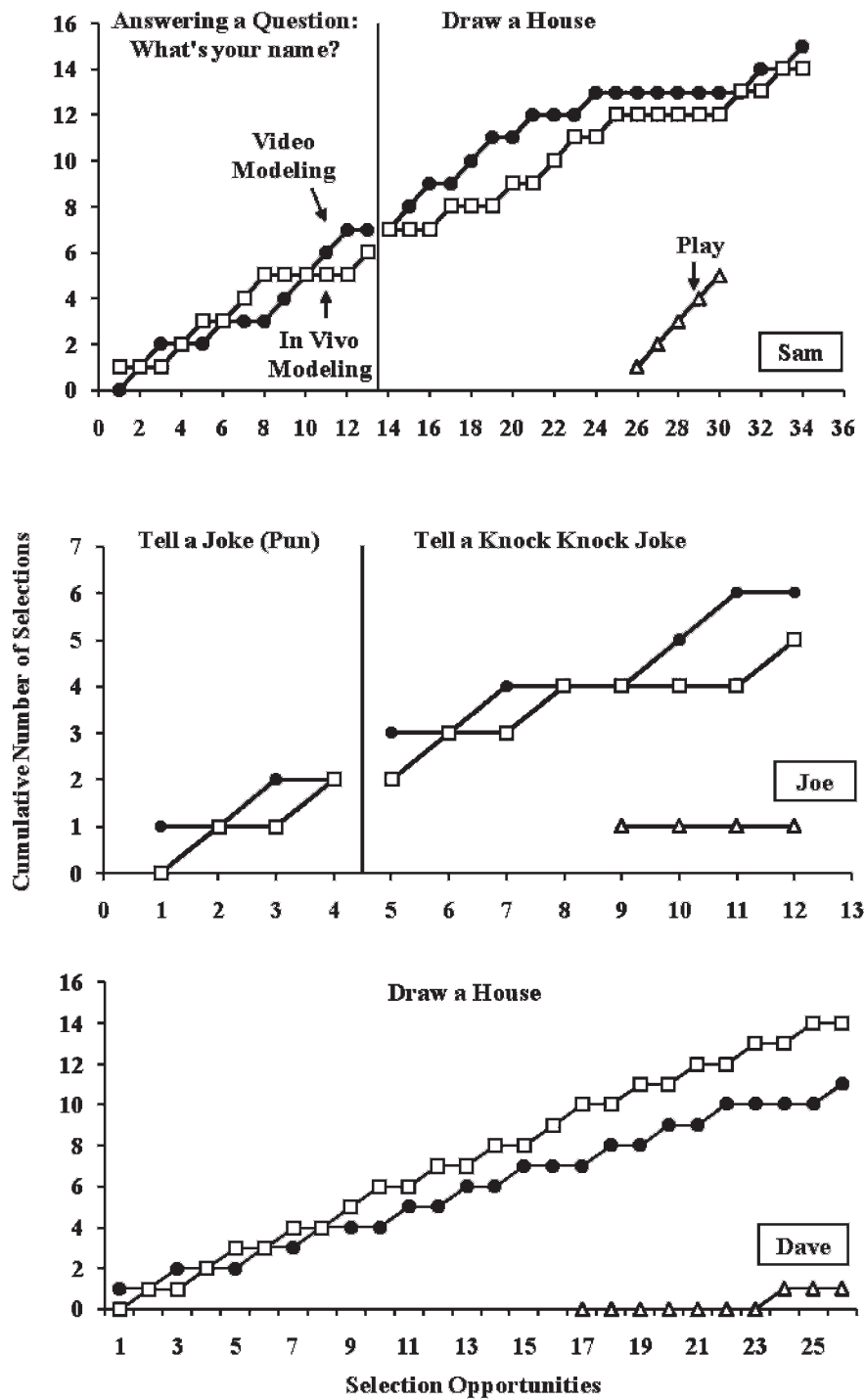


Figure 1. Cumulative number of selections for video modeling (filled circles), in vivo modeling (open squares), and free play (open triangles).

models than in vivo models and participants' preference for video modeling, a suggestion that other researchers also have endorsed (Dowrick, 1986). Our findings differed from those of Charlop-Christy et al. in that there was no consistent difference in treatment effectiveness, with Sam performing slightly better in in vivo modeling and Joe and Dave requiring the same number of trials to criterion for the two conditions. Participant-related differences or procedural differences (e.g., number of model presentations per trial, reinforcement of attending) might account for the discrepancy. Future research should investigate the conditions under which the procedures are differentially effective.

No strong relations among preference, attending, and effectiveness were identified. Sam attended longer to the video model, but the in vivo model was slightly more effective, and he displayed no treatment preference. Joe attended to the models for similar durations, performed equally well in the two conditions, and had no treatment preference. Dave attended inconsistently to both models, with a slight advantage for the in vivo model; required similar trials to mastery; and showed no preference for condition. If the procedures had been differentially effective, a preference for one might have emerged. Conversely, if a strong treatment preference existed, that treatment might have produced differential effects. Future studies with larger sample sizes might shed light on the relation between effectiveness and preference.

Certain limitations to the study are noteworthy. First, the similarity of the yoked skills might have contributed to multiple treatment interference or might have produced generalization across targets, resulting in similar performance across conditions. Future studies might program fewer structural similarities into the target tasks to increase the chances of detecting differences in the effectiveness of the two interventions. In addition, no supplemental instructional strategies (i.e., error correction)

were used, so our procedures are not directly comparable to those used by Charlop-Christy et al. (2000). Future studies might examine the effectiveness of the two modeling interventions with and without supplemental strategies.

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